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Mississippi Business Environment Before and After Katrina: Challenges and Opportunities

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MISSISSIPPI BUSINESS ENVIRONMENT BEFORE AND AFTER KATRINA: CHALLENGES AND OPPORTUNITIES

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ABSTRACT

Valid, reliable, and, most importantly, timely information is the most critical aspect for the design and implementation of successful emergency management strategies. This goal, however, is rarely achieved during the aftermath of a disaster. In this paper, we showcase how we used administrative records to assist Mississippi in evaluating the overall impact of Katrina on the state's economy. Specifically, we assisted the state in developing a methodology to generate valid, reliable, and timely information on (1) the business environment and labor market and (2) rehiring and hiring practices. This information was used by the state to design recovery strategies and justify the necessary funds from federal agencies to assist local communities in their economic recovery. The experience of Mississippi clearly shows that valid, reliable, and timely information is critical for developing effective policy.

Introduction

August 29, 2005, is a day to remember for many Americans, for the lives of millions of Americans were seriously disrupted by one of the most destructive natural disasters in the history of the United States (Gill forthcoming). On this date, Hurricane Katrina made landfall as a Category 4 storm on the U.S. Gulf Coast, resulting in an estimated total damage of $72 billion. Furthermore, the United States as a country realized that a disaster of this magnitude required an unprecedented level of preparedness at all levels of government and access to comprehensive and timely information relevant for the design and implementation of emergency management policies. The lack of preparation and timely information led to the failure of government across all levels. Local communities were also unprepared, especially those with high concentrations of poverty and minorities (Birch and Wachter 2006; Daniels, Kettl, and Kunreuther 2006; Venkatesh 2006). In order to be better prepared for future disasters, critics have suggested that it is important to improve communication across all levels of government, create community-based emergency response teams, and assist communities with limited

resources, such as those in rural settings (Flint and Brennan 2006; Saenz and Peacock 2006). This requires plans of action that rely on valid, reliable, and, most importantly, timely information. The availability and quality of information are seen by many as the most critical aspect of the design and implementation of successful recovery strategies in the aftermath of a disaster (Cohen 1995; Dahlhamer and Tierney 1998; Fadaie 2001). However, information-based recovery is a goal yet to be fully realized (Dawes, Cresswell, and Cahan 2004).

In this paper, we present a conceptual and methodological framework for gathering relevant information to address challenges and opportunities that emerge from disasters. Specifically, we showcase the use of administrative records as a means to assist Mississippi in evaluating the overall impact of Katrina on the state's economy. We assisted the state by generating information on (1) the business environment and labor market and (2) rehiring and hiring practices. This information was used to help the state design recovery strategies and justify the necessary funds from federal agencies to assist local communities in their economic recovery.

Background and Conceptual Framework

Any approach designed to address challenges and opportunities emerging from disasters must begin with a clear definition of what constitutes a disaster (Tierney, Lindell, and Perry 2001). In the traditional literature on disasters, a general consensus is that a disaster is an event concentrated in time and space that seriously disrupts the "functioning of a community or a society causing widespread human, social, material, economic, and environmental losses which exceed the capacity of the affected people to cope using their own resources" (Ahrens and Rudolph 2006: 207). Disasters are also socially defined. The event is defined by the experiences of the impacted individuals. These experiences vary by the social contexts in which victims are situated. In poor social contexts, the negative impact of disasters on individuals' experiences is exacerbated by the lack of human, social, and financial capital necessary to cope with the stress imposed by the disaster (Gill forthcoming). Furthermore, disasters are defined based on whether they are induced by natural events, such as earthquakes, or technological failures, such as oil spills. The former are referred to as "natural disasters," as they are triggered by an event independent of human control; the latter are referred to as "technological disasters," as they are triggered by human activity, and therefore, they can be prevented to some extent (Picou, Marshall, and Gill 2004). Whether or not the disaster is naturally or

technologically induced, the event will severely compromise the ability of a community or society to address crises that threaten its collective well-being.

The term "resiliency" is often used to capture the ability of a community or a society to sustain itself through a crisis (Dawes et al. 2004). This quality allows populations to maintain, preserve, and promote their collective well-being under a variety of circumstances dictated by short- and long-term changes in economic, demographic, and environmental conditions (Flora and Flora 1993; Luloff and Swanson 1995; Parisi et al. 2004; Sharp and Flora 1999; Swanson 2001). In the disaster recovery process, failure to rapidly restore this quality of resiliency might translate into individual and collective psychological stress that seriously hinders full recovery from a disaster, leading to the emergence of *corrosive communities* (Freudenburg 1993, 1997, 2000; Picou et al. 2004).

Critical for the restoration of resiliency in a community or society in the aftermath of a disaster is the development of recovery strategies that involves collective actions across all governmental levels based on valid, reliable, and timely information (Ahrens and Rudolph 2006; Meissner et al. 2002; Zhang, Zhou, and Nunamaker Jr. 2002). The importance of relevant information in the disaster recovery process has been highlighted by several recent studies. For example, in a study assessing the impact of the terrorist attacks on September 11, 2001, the inability to coordinate collective actions at all levels based on relevant information was found as the most troublesome factor in the rapid response to the disaster. This study concluded that data are becoming more essential and that "data-driven emergency response is a goal yet to be realized" (Dawes et al. 2004: 63). Other studies indicate that information was critical for coordinating actions across local and higher levels of jurisdictional authority, such as state and federal agencies (Tierney et al. 2001; Berke and Campanella 2006). Zhang et al. (2002) also indicated that the value of information rests on the fact that it allows for determining the magnitude of the problem and is therefore essential for the development of appropriate plans of action.

Currently, the literature provides guidance for the development of information management systems that facilitate the flow of information in the disaster recovery process (Iakovou and Douligeris 2001; Tierney et al. 2001). These systems, however, fail to provide information in a form that can assist those who need to engage in collective actions at the appropriate time. This limitation stems from the lack of a conceptual and methodological approach that helps identify relevant information to promote effective collectively oriented actions toward the disaster recovery process (Stallings 2002). Wilkinson (1970: 60) argues that any initiative

designed to address a crisis in a community or society requires information that promotes collective actions around five theme-actions. First, a community or society must have access to information necessary for the development of a mutual understanding about the extent of the problem at hand so that collective awareness can be established. Second, a community or society must have access to information that facilitates actions aimed at creation of new groups or adaptation of existing groups, such as the formation of committees, to properly address the problem at hand. Third, information must be made available to groups in order to facilitate collective actions toward making effective decisions about resource mobilization and identification. Fourth, information must be made available to promote collectively-oriented actions toward the mobilization of resources, including financial and infrastructure support along with the legitimization of strategies. Finally, information must be made available to promote collective actions toward effective applications of resources in the recovery strategy to minimize any foreseeable negative impact on a community or society.

Any model of actions should be based on the concept of community defined in interactional terms (Flora and Flora 1993; Luloff and Swanson 1995; Parisi et al. 2004; Sharp and Flora 1999; Swanson 2001; Wilkinson 2000). According to this approach, individuals, groups, or actors are bonded by a structural context that fosters channels of communication through processes of interaction within and between social fields. Processes of interaction within social fields involve members of distinct groups, such as faith-based organizations, civic interest groups, and economic and political organizations. These processes of interaction enable participants to develop similar interests within their own social fields. When different interests expressed through social fields converge, overlap, and are coordinated, members of various social fields engage in collective processes of interaction that lead to the emergence of community fields (Wilkinson 2000).

When a disaster of Katrina's magnitude strikes, it undermines the social structure that facilitates processes of interaction, and therefore, channels of communication necessary to promote collective-oriented actions. In these situations, making information available in an appropriate form is crucial for restoring communications for promoting collectively oriented actions toward disaster recovery. In the aftermath of a disaster, four main actions need to be taken: (1) search and rescue, (2) providing basic needs such as food, clothing, and shelter, (3) helping victims reunite with family members and friends, and (4) assisting people in their efforts to return to work—a fundamental action for restoring the economic viability of an area impacted by disaster (Paton 1999).

Current Study

This study focuses on the importance of having access to relevant information to promote collective actions that can help a state allocate resources to restore economic viability to an impacted area. However, this study does not address the important issue of providing information relevant to disaster preparedness. It also does not address the importance of information for post-recovery planning. It simply addresses the importance of information for the aftermath of a disaster in the initial recovery process. In this respect, we provided information relevant to assess the magnitude of the problem. This was done by assessing the pre- and post-Katrina economic environment in Mississippi. Information was also provided to assist coordination efforts among state and local organizations involved in workforce and economic development. Lastly, the information produced was used to assist the state in making effective decisions about resource mobilization and resource application.

Methodology

In the aftermath of a disaster, publicly available data, such as Census data, usually provide limited information to assist in the disaster recovery process for two fundamental reasons. First, they are not timely, as they are generally collected several years in the past. Second, they are limited to preexisting geographic areas that might not be coterminous with the impacted area. Thus, the best source of data to address the aftermath of a disaster is state agency administrative records. Administrative records are timely and geographically flexible because they are collected to reflect the current situation and are structured in a way that can help fit, often perfectly, the impacted area. Several studies have shown that administrative data are valid, reliable, and, most importantly, timely because they provide an accurate enumeration of events rather than being generated from a process of estimation (Parisi et al. 2006).

The administrative data used in this study came from the Mississippi Department of Employment Security (MDES) and consisted of unemployment insurance (UI) and business tax records. The UI records are updated weekly and were used to determine the number of people who were dislocated as a result of Katrina. These records also identify claimants who received disaster unemployment assistance (DUA) from Katrina emergency funds and those who did not. The business tax records were used to link to the UI records to count the number of businesses that had a dislocated workforce as a result of Katrina. Both sets of data were made available as part of our involvement in the state accountability system.

Over the past decade, we have developed a system to track and evaluate performance of workforce and economic activities across state and federal funding streams using administrative records across agencies. This system is based on a data warehouse model rather than a unified information management system model. A data warehouse model has the advantage of accessing data from multiple information management systems that can be managed and analyzed to address the problem at hand in a timely fashion.

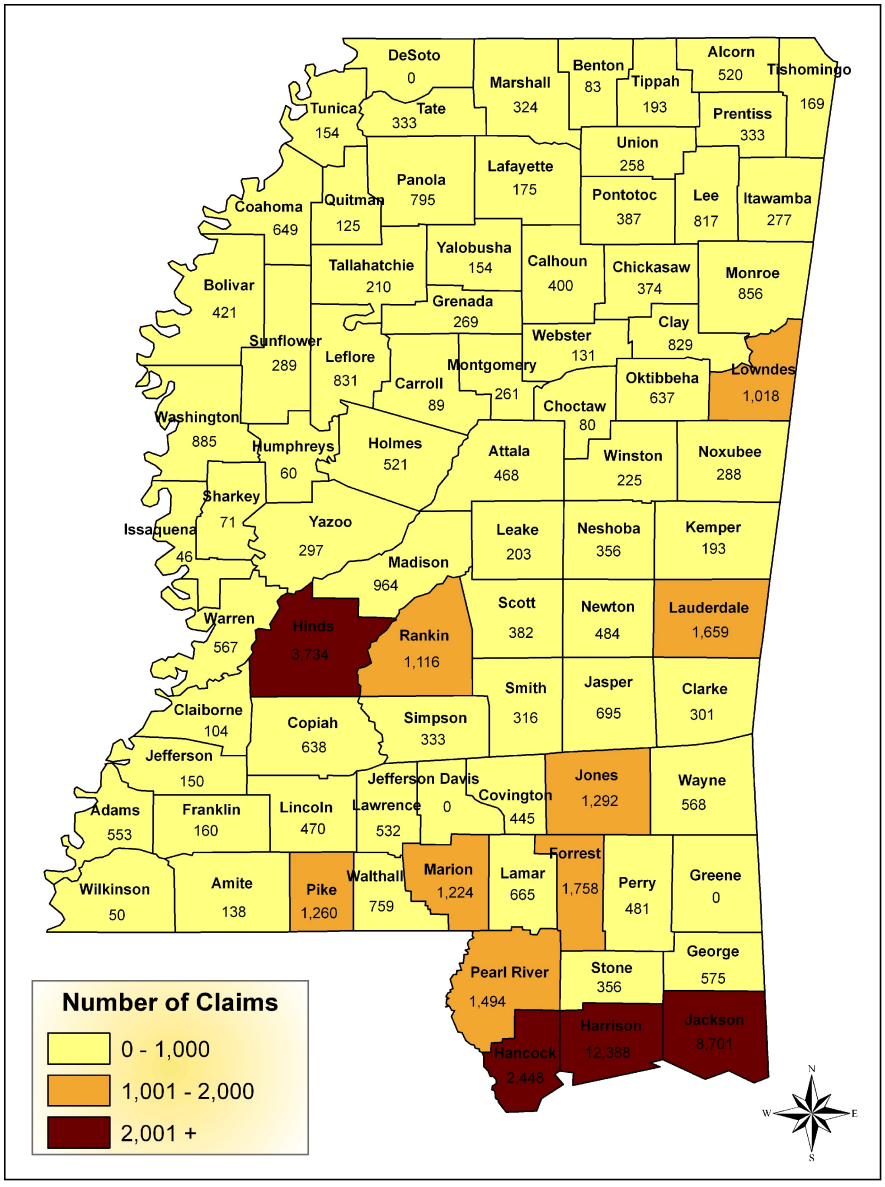
As a result of being able to manage and analyze administrative records immediately after the disaster, it was possible to provide a report to the state within the first two weeks of October 2005. This analysis was used to design a telephone survey that was administered in January 2006. The data from the survey were used to estimate the number of dislocated employees rehired and the number of new hires made by impacted and non-impacted employers.

The survey data were generated from a random sample drawn from a comprehensive list of businesses operating in the eleven counties with the highest DUA claims in the state. Using the number of claims filed during the month of September 2005, we selected the following counties: Forrest, George, Hancock, Harrison, Hinds, Jackson, Jones, Lamar, Marion, Pearl River, and Stone (see Figure 1). To ensure the sample represented each county in the study area, the number of businesses randomly selected from each county was equal to the proportion of the total businesses of the eleven counties operating within each county. This generated a sample with a +/- 2.0 percent margin of error. A total of 3,149 surveys were completed, accounting for a 51.8 percent response rate. The distribution of employers in the sample by business size approximates the distribution in the population. Given the similarity in distribution between the population and sample distributions, the generation of estimates for hiring and rehiring activities was straightforward. The estimation procedure involved weighting the data by the inverse probability of a business being within a particular sample of business size.

In the eleven counties, there were a total of 14,798 active businesses prior to Katrina. These businesses accounted for approximately 27 percent of all businesses in Mississippi and provided jobs to 277,370 employees, accounting for 25 percent of all covered employees in the state. Based on the UI disaster claims, 4,155 businesses in the eleven counties were impacted by Katrina, accounting for 28 percent of all businesses and 15 percent of all covered employees. Covered employees comprise the largest part of the workforce but do not include government, military, and self-employed individuals. All percentages reported in this study are based on covered employment. When compared to the state as a

whole, the 4,155 businesses accounted for 61 percent of all businesses impacted in the state. Claims tied to these businesses totaled 41,055 or 60 percent of all disaster claims in Mississippi.

Figure 1. Unemployment Insurance Claims, September 2005.



Source: Mississippi Department of Employment Security September 2004/2005 Claims Report, October 31, 2005.

Results

Business environment before Katrina

Prior to Katrina, there were approximately 55,000 active businesses in Mississippi. Of those, 66 percent were businesses with one to five employees; 28 percent were businesses with six to 50 employees; and five percent were businesses with more than 50 employees (see Table 1). Businesses with more than 50 employees employed approximately 69 percent of covered employees. Although small businesses (five or fewer employees) provide employment to a smaller fraction of the workforce, they play a central role in maintaining and promoting the viability of local economies. Small businesses are the incubators of local entrepreneurship and community development and play a major role in maintaining, supporting, and attracting large businesses in the state.

Table 1. NUMBER OF EMPLOYERS AND EMPLOYEES BY BUSINESS SIZE BEFORE KATRINA.

	EMPLOYERS		EMPLOYEES	
SIZE	N	Percent	N	Percent
1-5.	36,702	66.2	104,320	9.40
6-10.	7,345	13.3	56,931	5.13
11-15.	3,196	5.8	41,248	3.72
16-20.	1,749	3.2	31,534	2.84
21-50.	3,511	6.3	111,464	10.05
51+.	2,915	5.3	764,108	68.86
Total.	55,418	100.0	1,109,605	100.00

Source: 2005 MDES Administrative Records.

Prior to Katrina, the largest sector in Mississippi was the service sector. This sector employed 50 percent of all covered employees. This sector was followed by manufacturing (17 percent) and retail trade (13 percent) (see Table 2). Within the service sector, more than two-thirds of jobs were in three subsectors: (1) health care and social assistance (27.3 percent), (2) accommodations and food services (20.9 percent), and (3) educational services (19 percent) (see Table 3). Jobs in health care and education pay an annual average wage of $30,465 and $26,839, respectively. In contrast, jobs in food services and accommodation pay the smallest annual average wage at $14,104. Within the manufacturing sector, almost two-thirds of jobs were

Table 2. NUMBER OF EMPLOYERS AND EMPLOYEES BY INDUSTRIAL CLASSIFICATION BEFORE KATRINA.

2-DIGIT INDUSTRIAL CLASSIFICATION	EMPLOYERS		EMPLOYEES	
	N	%	N	%
Agriculture, Forestry, Fishing, and Mining.	2,200	4.0	18,510	1.7
Utilities.	434	0.8	9,185	0.8
Construction.	5,924	10.7	55,501	5.0
Manufacturing.	2,691	4.9	192,466	17.3
Wholesale Trade.	4,328	7.8	38,171	3.4
Retail Trade.	8,598	15.5	146,573	13.2
Transportation and Warehousing.	2,331	4.2	33,317	3.0
Information.	705	1.3	17,146	1.5
Services.	27,675	49.9	550,692	49.6
Public Administration.	525	0.9	47,944	4.3
Total.	55,411	100.0	1,109,505	100.0

Source: 2005 MDES Administrative Records.

Table 3. NUMBER OF EMPLOYERS AND EMPLOYEES WITHIN SERVICE BEFORE KATRINA.

	EMPLOYERS		EMPLOYEES	
	N	%	N	%
Professional and Business Services				
Professional, Scientific, and Technical.	5,144	18.6	35,439	6.4
Management of Companies.	118	0.4	2,917	0.5
Administrative and Support.	2,550	9.2	43,150	7.8
Educational and Health Services				
Educational Services.	560	2.0	105,845	19.2
Health Care and Social Assistance.	4,714	17.0	150,480	27.3
Leisure and Hospitality				
Arts, Entertainment, and Recreation.	677	2.4	13,382	2.4
Accommodation and Food Services.	3,461	12.5	115,360	20.9
Other Services	10,450	37.8	84,119	15.3
Total	27,675	100.0	550,692	100.0

Source: 2005 MDES Administrative Records.

in transportation equipment (see Table 4). Jobs in this subsector pay an annual average wage of $40,000.

Table 4. NUMBER OF EMPLOYERS AND EMPLOYEES WITHIN MANUFACTURING BEFORE KATRINA.

	EMPLOYERS		EMPLOYEES	
	N	%	N	%
Durable Manufacturing				
Wood Product.	279	10.4	14,432	7.5
Fabricated Metal.	364	13.5	11,247	5.8
Machinery.	175	6.5	12,075	6.3
Computer and Electronic Equipment.	38	1.4	3,339	1.7
Electrical Equipment.	47	1.7	9,662	5.0
Transportation Equipment.	135	5.0	35,359	18.4
Furniture and Related Products.	323	12.0	27,097	14.1
Non-Durable Manufacturing				
Food.	190	7.1	32,073	16.7
Apparel.	53	2.0	4,155	2.2
Paper.	56	2.1	4,459	2.3
Chemical.	128	4.8	6,632	3.4
Other Manufacturing.	903	33.6	31,936	16.6
Total	2,691	100.0	192,466	100.0

Source: 2005 MDES Administrative Records.

Business environment after Katrina

Katrina impacted 6,774 businesses—approximately 12 percent of all businesses in Mississippi—in terms of DUA claimants who received benefits. Approximately 70,000 employees from these businesses received UI disaster assistance benefits between August and November 2005. Of the 6,774 businesses, half had fewer than ten employees, and 40 to 70 percent of their workforce was dislocated. Furthermore, 892 employers dislocated their entire workforce. Of those, 94 percent came from businesses with fewer than ten employees. Worth noting is that over two-thirds of disaster benefits paid to disaster claimants were tied to businesses with more than fifty employees (see Table 5).

Table 5. IMPACTED EMPLOYERS AND EMPLOYEES BY BUSINESS SIZE.

SIZE	EMPLOYERS		EMPLOYEES	
	N	Percent	N	Percent
1-5.	2,480	36.6	7,116	10.3
6-10.	1,000	14.8	3,292	4.7
11-15.	590	8.7	2,614	3.8
16-20.	379	5.6	1,971	2.8
21-50.	941	13.9	6,588	9.5
51+.	1,384	20.4	47,832	68.9
Total.	6,774	100.0	69,413	100.0

Source: 2005 MDES Administrative Records.

Of the 6,774 impacted businesses, 54 percent were in the service sector (see Table 6), followed by retail trade (17.3 percent), construction (9.2 percent), and manufacturing (7.6 percent). Within the manufacturing sector, the most impacted subsector was transportation equipment, accounting for 64 percent of all the jobs

Table 6. IMPACTED EMPLOYERS AND EMPLOYEES BY INDUSTRIAL CLASSIFICATION.

2-DIGIT INDUSTRIAL CLASSIFICATION	EMPLOYERS		EMPLOYEES	
	N	%	N	%
Agriculture, Forestry, Fishing, and Mining.	119	1.8	307	0.4
Utilities.	26	0.4	119	0.2
Construction.	625	9.2	2,288	3.3
Manufacturing.	517	7.6	13,209	19.0
Wholesale Trade.	272	4.0	749	1.1
Retail Trade.	1,173	17.3	8,763	12.6
Transportation and Warehousing.	228	3.4	1,359	2.0
Information.	79	1.2	843	1.2
Services.	3,655	54.0	40,999	59.1
Public Administration.	79	1.2	774	1.1
Total.	6,773	100.0	69,410	100.0

Source: 2005 MDES Administrative Records.

impacted in the manufacturing industry (see Table 7). Within the service sector, the most impacted subsector was accommodation and food service, accounting for 44 percent of all jobs impacted in the service industry and health care (see Table 8).

Table 7. NUMBER OF EMPLOYERS AND EMPLOYEES IMPACTED WITHIN MANUFACTURING.

	EMPLOYERS		EMPLOYEES	
	N	%	N	%
Durable Manufacturing				
Wood Product.	53	10.3	507	3.8
Fabricated Metal.	54	10.4	311	2.4
Machinery.	38	7.4	246	1.9
Computer and Electronic Equipment.	11	2.1	516	3.9
Electrical Equipment.	10	1.9	322	2.4
Transportation Equipment.	39	7.5	8,512	64.4
Furniture and Related Products.	43	8.3	284	2.2
Non-Durable Manufacturing				
Food.	58	11.2	1,121	8.5
Apparel.	12	2.3	235	1.8
Paper.	6	1.2	95	0.7
Chemical.	35	6.8	167	1.3
Other Manufacturing.	158	30.6	893	6.8
Total.	517	100.0	13,209	100.0

Source: 2005 MDES Administrative Records.

Note: One business (Northrop Grumman) in transportation equipment accounts for 7,969 disaster claimants.

Business rehiring and hiring activity[1]

The statistics for this analysis are reported in Table 9 and 10. The statistics show that between impacted and non-impacted businesses, an estimated total of 29,142 employees were rehired or newly hired. This is the equivalent of 71 percent of the Katrina dislocated workforce. Specifically, 32.5 percent of the impacted

[1]The results of this analysis are pertinent to the eleven-county study area. Although these estimates can be used to make some generalizations, specific estimates on rehiring and hiring are best limited to the study area.

Table 8. NUMBER OF EMPLOYERS AND EMPLOYEES IMPACTED WITHIN SERVICE.

	EMPLOYERS		EMPLOYEES	
	N	%	N	%
Professional and Business Services				
Professional, Scientific, and Technical.	445	12.2	1,628	4.0
Management of Companies.	8	0.2	33	0.1
Administrative and Support.	360	9.8	3,533	8.6
Educational and Health Services				
Educational Services.	137	3.7	3,416	8.3
Health Care and Social Assistance.	815	22.3	7,193	17.5
Leisure and Hospitality				
Arts, Entertainment, and Recreation.	119	3.3	3,628	8.8
Accommodation and Food Services.	826	22.6	17,996	43.9
Other Services.	945	25.9	3,572	8.7
Total.	3,655	100.0	40,999	100.0

Source: 2005 MDES Administrative Records.

Table 9. CLAIMANTS REHIRED BY ORIGINAL EMPLOYER BY BUSINESS SIZE.

SIZE	EMPLOYER[1]		CLAIMANTS[1]		REHIRED[2]	
	N	%	N	%	N	%*
1-5.	1,812	43.6	4,490	10.9	588	13.1
6-10.	721	17.4	2,594	6.3	302	11.7
11-15.	406	9.8	2,014	4.9	158	7.8
16-20.	239	5.8	1,410	3.4	51	3.6
21-50.	517	12.4	4,234	10.3	280	6.6
51+.	460	11.1	26,313	64.1	2,278	8.7
Total.	4,155	100.0	41,055	100.0	3,658	8.9

[1]Source: 2005 MDES Administrative Records.

[2]Estimates calculated from 2006 Katrina Reemployment Survey data.

*This is the percentage of claimants rehired by the original employer.

Table 10. New Hires by Impacted and Non-Impacted Businesses.

Size	Impacted		Non-Impacted	
	N	%	N	%
1-5	401	16.7	3,482	15.1
6-10	302	12.6	2,407	10.4
11-15	460	19.1	2,692	11.7
16-20	47	2.0	1,272	5.5
21-50	340	14.2	3,514	15.2
51+	853	35.5	9,712	42.1
Total	2,404	100.0	23,080	100.0

Note: These estimates are calculated from 2006 Katrina Reemployment Survey data.

businesses in the eleven counties indicated that they rehired some part of their dislocated workforce. These businesses rehired an estimated 3,658 people or approximately nine percent of the dislocated workforce. Employers with fewer than ten employees rehired at an above average rate (25 percent). Impacted businesses also hired an estimated 2,404 new employees. This is equivalent to another six percent of the dislocated workforce. Together, the rehiring and hiring account for approximately 15 percent of the original workforce. Non-impacted businesses also hired an estimated 23,080 new employees. This is the equivalent of 56 percent of the dislocated workforce.

Labor Market Views: Long and Short Term

Approximately half of the businesses in the study area indicated that labor market conditions over the long term would worsen. The other half expressed a mixed view with 20 percent of the businesses indicating that the labor market will improve and 24 percent indicating that the conditions of the labor market will remain the same. In the short term, 86 percent of the businesses indicated that they could not find as skilled a workforce as they could prior to Katrina. As a result, 10 percent of businesses have lowered their hiring standards to fill positions. Specifically, they have lowered their expectations in terms of experience, education, and skill requirements.

Operating in the Post-Katrina Labor Market

Businesses undertook several activities to cope with labor force shortages in the aftermath of Katrina. Most commonly, they increased the number of hours

employees work per week. One-third of the businesses had to spend more time and effort to retain and recruit employees. Similarly, 25 percent of businesses had limited operating hours, and 20 percent had found themselves in "bidding wars" for employees.

Views of Workforce Assistance

Almost three-quarters of the businesses were aware that employer assistance is available through their local WIN Job Center. Of several areas, recruiting and providing training to upgrade skills were the main areas of assistance that businesses are most interested in receiving. On the other hand, businesses indicated that they are less interested in receiving assistance in the areas of matching applicant skills, analyzing skill requirements for jobs, and determining skill and training needs. A major concern was to address the shortage of workforce in specific job occupations. Businesses indicated that they predominantly needed assistance to fill positions in: (1) Office and Administrative Support, (2) Sales and Related, and (3) Construction and Extraction (see Table 11).

Table 11. DEMAND OCCUPATIONS.

OCCUPATIONS	PERCENT
Office and Administrative Support.	14.9
Sales and Related.	14.0
Construction and Extraction.	12.2
Installation, Maintenance, and Repair.	11.4
Production.	8.5
Transportation and Material Moving.	7.2
Food Preparation and Serving.	6.6
Personal Care and Services.	4.3
Management.	4.1
Healthcare Practitioners and Technical.	2.8
Building and Grounds Cleaning and Maintenance.	2.6
Other/Unclassified.	2.3
Business and Financial.	1.4
Education, Training, and Library.	1.4
Architecture and Engineering.	1.3
Healthcare Support.	1.2
Legal.	1.0
Arts, Design, Entertainment, Sports, and Media.	1.0
Protective Services.	0.8
Community and Social Services.	0.4
Farming, Fishing, and Forestry.	0.3
Computer and Mathematical.	0.3
Total.	100.0

Source: 2006 Katrina Reemployment Survey.

Conclusions

This paper highlights the importance of generating valid, reliable, and timely information to assist a state in emergency planning for economic recovery in the aftermath of a disaster. In this respect, we first used weekly administrative records from MDES to evaluate the economic environment before and after Katrina. We were able to provide a report to the state of Mississippi immediately after the disaster. The report was used to estimate the impact of Katrina on the unemployment insurance trust fund, which aided the state in securing $85 million from the U.S. Department of Labor so that it could maintain solvency.

A major concern for the state was to retain its workforce in the aftermath of Katrina. Timely information on the potential impact of the UI trust fund allowed the state to make informed decisions on the amount of benefits that DUA claimants could receive. The state decided to pay the maximum benefit to all DUA claimants. This strategy was especially effective in helping to retain those in low-wage jobs in the food and services industry. It also helped to maintain the economic viability of the heavily impacted areas. In fact, for every dollar paid in UI benefits, there is $2.20 generated in the economy (Vroman 1998).

Another major concern for state leaders was placing people back to work as quickly as possible. The information clearly showed that businesses in Mississippi possess the quality of resiliency and are committed to continuing and expanding their operations in the disaster area. The businesses show a sense of optimism in the face of constraints with the shortage of workforce in specific occupations. The information from our report allowed the state to wisely plan the allocation of resources for recruiting and training and allowed for an equitable distribution of resources across local labor market areas not only on the Mississippi Gulf Coast but the state as a whole. Finally, the information generated from this study was used to properly allocate resources for training necessary to prepare a workforce needed in an emergent economy after Hurricane Katrina.

The experience of Mississippi clearly shows that valid, reliable, and timely information is critical for developing effective policy, especially in the aftermath of a disaster. The information generated from this study allowed the state of Mississippi to respond quickly and effectively to the needs of the workforce and the business community in the impacted area. It also allowed the state to secure funding and allocate this funding in an equitable manner. Therefore, valid, reliable, and timely information proved to be invaluable in the process of developing emergency recovery plans in the aftermath of a disaster.

References

Ahrens, J. and P.M. Rudolph. 2006. "The Importance of Governance in Risk Reduction and Disaster Management." *Journal of Contingencies and Crisis Management* 14:207-20.

Berke, P.R. and T.J. Campanella. 2006. "Planning for postdisaster resiliency." *ANNALS American Academy of Political and Social Science.* 604:192-207.

Birch, E.L. and S.M. Wachter. 2006. *Rebuilding Urban Places After Disaster: Lessons from Hurricane Katrina.* Philadelphia, PA: University of Pennsylvania Press.

Cohen, M.J. 1995. "Technological Disasters and Natural Resource Damage Assessment: An Evaluation of the Exxon Valdez Oil Spill." *Land Economics* 71:65-82.

Dahlhamer, J.M. and K.J. Tierney. 1998. "Rebounding from Disruptive Events: Business Recovery Following the Northridge Earthquake." *Sociological Spectrum* 18:121-41.

Daniels, R. J., D. F. Kettl, and H. Kunreuther. 2006. *On Risk and Disaster: Lessons from Hurricane Katrina.* Philadelphia, PA: University of Pennsylvania Press.

Dawes, S.S., A.M. Cresswell, and B.B. Cahan. 2004. "Learning from Crisis: Lessons in Human and Information Infrastructure from the World Trade Center Response." *Social Science Computer Review* 22:52-66.

Fadaie, K. 2001. "Mapping for Emergency Situations: The Canadian Experience." *Australian Journal of Emergency Management* 16:32-36.

Flint, C. and M. Brennan. 2006. "Community Emergency Response Teams: From Disaster Responders to Community Builders." *The Rural Sociologist* 26:28-36.

Flora, C.B. and J.L. Flora. 1993. "Entrepreneurial Social Infrastructure: A Necessary Ingredient." *The Annals of the American Academy of Political and Social Science* 529:48-58.

Freudenburg, W.R. 1993. "Risk and Resiliency: Weber, the Division of Labor, and the Rationality of Risk Perceptions." *Social Forces* 71:909-32.

_____. 1997. "Contamination, Corrosion, and the Social Order: An Overview." *Current Sociology* 45:19-40.

_____. 2000. "The 'Risk Society' Reconsidered: Recreancy, the Division of Labor, and Risk to the Social Fabric." Pp. 107-20 in *Risk in the Modern Age: Social Theory, Science, and Environmental Decision-Making*, edited by M.J. Cohen. New York: St. Martin's Press.

Gill, D.A. Forthcoming. "Secondary Trauma or Secondary Disaster? Insights from Hurricane Katrina." *Sociological Spectrum.*

Iakovou, E. and C. Douligeris. 2001. "An Information Management System for the Emergency Management of Hurricane Disasters." *International Journal of Risk Assessment and Management* 2:243-62.

Luloff, A.E. and L.E. Swanson. 1995. "Community Agency and Disaffection: Enhancing Collective Resources." Pp. 351-72 in *Investing in People: The Human Capital Needs of Rural America*, edited by L.J. Beaulieu and D. Mulkey. Boulder: Westview Press.

Meissner, A., T. Luckenbach, T. Risse, T. Kirste, and H. Kirchner. 2002. "Design Challenges for an Integrated Disaster Management Communication and Information System." The First IEEE Workshop on Disaster Recovery Networks (DIREN 2002), June 24, 2002, New York, co-located with IEEE INFOCOM 2002.

Parisi, D., M. Taquino, S.M. Grice, and D.A. Gill. 2004. "Civic Responsibility and the Environment: Linking Local Conditions to Community Environmental Activeness." *Society and Natural Resources* 17:97-112.

Parisi, D., D.K. McLaughlin, S.M. Grice, and M. Taquino. 2006. "Exiting TANF: Individual and Local Factors and Their Different Influence Across Racial Groups." *Social Science Quarterly* 87:76-90.

Paton, D. 1999. "Disaster Business Continuity: Promoting Staff Capability." *Disaster Prevention and Management* 8:127-33.

Picou, J.S., B.K. Marshall, and D.A. Gill. 2004. "Disaster, Litigation, and the Corrosive Community." *Social Forces* 82:1493-1522.

Saenz, R. and W.G. Peacock. 2006. "Rural People, Rural Places: The Hidden Costs of Hurricane Katrina." *Rural Realities* 1:1-11.

Sharp, J.S. and J.L. Flora. 1999. "Entrepreneurial Social Infrastructure and Growth Machine Characteristics Associated with Industrial-Recruitment and Self-Development Strategies in Non-Metropolitan Communities." *Journal of the Community Development Society* 30:131-53.

Stallings, R.A. 2002. "Weberian Political Sociology and Sociological Disaster Studies." *Sociological Forum* 17:281-305.

Swanson, L.F. 2001. "Rural Policy and Direct Local Participation: Democracy, Inclusiveness, Collective Agency, and Locality-Based Policy." *Rural Sociology* 66:1-21.

Tierney, K.J., M.K. Lindell, and R.W. Perry. 2001. *Facing the Unexpected: Disaster Preparedness and Response in the United States*. Washington, D.C.: Joseph Henry Press.

Venkatesh, S.A. 2006. "Sociology and Katrina." *City & Community* 5:115-18.

Vroman, W. 1998. *Topics in Unemployment Insurance Financing.* Kalmazoo, MI: W.E. Upjohn Institute for Employment Research.

Wilkinson, K.P. 1970. "Phases and Roles in Community Action." *Rural Sociology* 35:54-68.

_____. 2000. *The Community in Rural America.* Middleton: Social Ecology Press.

Zhang, D., L. Zhou, and J.F. Nunamaker Jr. 2002. "A Knowledge Management Framework for the Support of Decision Making in Humanitarian Assistance/Disaster Relief." *Knowledge and Information Systems* 4:370-85.